

REMARKS

Claims 1-15 and 30-39 remain in this application. Claims 16-29 have been cancelled by previous amendment. In view of the foregoing amendments and remarks that follow, reconsideration and timely indication of allowance are respectfully requested.

Rejection of claims 1-15, 30-33, 38 and 39

Claims 1-15, 30-33, 38 and 39 have been rejected under 35 USC 103(a) as purportedly being unpatentable over Kitagawa (US 6,624,613 B2) in view of Shyr (US 5,903,764). This rejection is respectfully traversed.

Battery life is an important consideration in the design of many electronic components. Various techniques have been employed in the past by manufacturers to reduce the average power consumption of the device, and thereby extend battery life. However, average power consumption is only one component of battery life. Further increases in battery life may be realized by increasing the efficiency of the battery. One way to increase the efficiency of the battery is to operate in a pulse discharge mode. The problem is that the electronics may require an uninterrupted power source.

Applicant discloses a novel and unobvious approach for extending battery life in an electronic device. This is achieved by operating two batteries in a pulse discharge mode and alternatively switching the two batteries to the load to provide a constant current source. This concept is captured in claim 1 where a power source is recited with “first and second batteries” and “a power management module configured to operate each of the first and second batteries in a pulse current discharge mode while supplying continuous current to the load.” (emphasis added).

Kitagawa, the primary reference relied by the Examiner discloses a power supply connected to a load. The power supply is configured with two batteries connected in parallel. When an external power source is connected to the load, the power supply enters into a “charging state” (i.e., the two batteries are charged). In the charging state, two switches, one at the input to each battery, are controlled to ensure that current does not flow between the two batteries if the charging rates are different. When the external power source is removed from the

load, the power supply enters into a “discharge state” (i.e., the two batteries supply the current to the load). In the discharge state, the switches are controlled to connect one battery to the load until it is fully discharge and then switch the other battery to the load.

In rejecting independent claim 1, the Examiners asserts that Kitagawa discloses first and second batteries that operate in a pulse current discharge mode while supplying a continuous current to a load. In support of this position, the Examiner relies on specific text directed to the operation of a fourth embodiment in Kitagawa. (see Kitagawa, col. 11:31-45; col. 16:39-52; and fig. 21 and 36). This text, however, does not teach or suggest operating a battery in a “pulse current discharge mode” because the text is describing a procedure for charging the batteries. Since the text is describing a procedure for charging the batteries, the batteries cannot supply “a continuous current to a load,” which is also required by claim 1. Rather, the load current is supplied by the external power source used to charge the batteries.

Kitagawa does disclose the operation of the power supply in the discharge state, but neither battery is operated in a pulse current discharge mode. Rather, the battery is configured to provide a continuous current source to the load through a switch until it is fully discharged, at which time the switch is opened. Accordingly, claim 1 is patentable over the combination of Kitagawa and Shyr.

Claims 11 and 30 contain similar limitations to claim 1, and therefore, are also patentable over the combination Kitagawa and Shyr.

Claims 2-10 are dependent from claim 1, claims 12-15 are dependent from claim 11, and claims 31-39 are dependent from claim 30. These dependent claims include all the limitations of the claims from which they respectively depend, and therefore, are also patentable for the same reasons set forth above, as well as the additional limitations recited therein.

Rejection of claims 34-37

Claims 34, 36 and 37 have been rejected under 35 USC 103(a) as purportedly being unpatentable over Kitagawa and Shyr as applied to claim 32, and further in view of Leifer (US 6,459,171 B1). Claim 35 has been rejected under 35 USC 103(a) as purportedly being

unpatentable over Kitagawa, Shyr and Leifer as applied to claim 34, and further in view of Mole (US 6,522,873B1). These rejections are respectfully traversed.

In rejecting claims 34-37, the Examiners relies again on Kitagawa for disclosing first and second batteries that operate in a pulse current discharge mode while supplying a continuous current to a load. Accordingly, these claims are also patentable over the combinations of Kitagawa, Shyr, Leifer and Mole cited by the Examiner for the same reasons set forth in the preceding section of this response.

CONCLUDING REMARKS

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is now in condition for allowance, and accordingly, reconsideration and allowance are respectfully requested. Should any issues remain which the Patent Office believes could be resolved in a telephone interview, the Examiner is requested to telephone Applicant's undersigned attorney.

Respectfully submitted,

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